Who is dying with HIV/AIDS, and how has this changed over time? Detailed Data Tables and Technical Notes

Recent changes to the presentation of Massachusetts HIV/AIDS surveillance data

Effective January 1, 2011, the Massachusetts Department of Public Health (MDPH), Bureau of Infectious Diseases, HIV/AIDS fact sheets, epidemiologic reports and other HIV data presentations have been updated to remove all HIV/AIDS cases that were first diagnosed in another state before being reported in Massachusetts. As of January 1, 2014, this resulted in the removal of 4,135 HIV/AIDS cases, of which 973 have died and 3,162 were living. These persons living with HIV/AIDS may still continue to reside and receive care in the Commonwealth. The total number of persons living with HIV/AIDS, irrespective of location at diagnosis, is the basis for MDPH service planning. This change is partially a result of increased activities required by the Centers for Disease Control and Prevention (CDC) for de-duplication among states in an effort to identify cases that are counted multiple times in the National HIV/AIDS Surveillance System. The cases are assigned to the state that reports the earliest date of AIDS diagnosis if available. If the case has not progressed to AIDS, the case is assigned to the state with the earliest HIV diagnosis date. Please note that previous HIV/AIDS fact sheets, data reports and presentations included cases that may have been first diagnosed in another state.

Also effective January 1, 2011, the MDPH HIV/AIDS fact sheets, epidemiologic reports, and other data presentations have been updated to eliminate the presumed heterosexual reported risk category for men; those cases have been reassigned to the no identified risk (NIR) category. The presumed heterosexual reported risk category was used with the intention of identifying HIV reported risk for women when sex with men is the only reported risk factor, there is no evidence of current or past injection drug use (IDU), and behavioral risk and HIV status information about male sexual partners are unknown. Twenty-nine percent of women living with HIV/AIDS and 40% of recent female HIV diagnoses are reported in the presumed heterosexual reported risk category. The application of the presumed heterosexual reported risk category to men is overly inclusive in that female to male HIV transmission is biologically less probable, and there are alternate reported risks that are possible for men, including sex with other men (MSM) or IDU. The CDC reports men diagnosed with HIV/AIDS who report sex with women as their only risk factor, without corresponding partner risk or HIV status information, in the NIR category. This revision to report presumed heterosexual male HIV/AIDS cases as NIR will bring Massachusetts HIV/AIDS case reporting for men in alignment with CDC standards. The MDPH will maintain presumed heterosexual and heterosexual reported risk categories for women.

To describe who is dying with HIV/AIDS and how this has changed over time, these tables and the accompanying fact sheet present a profile of deaths during the ten-year period from 2003–2012 among individuals diagnosed with HIV/AIDS. Additionally, information about deaths among people reported with AIDS for the ten-year period 2003 to 2012, as well as the years 1985, 1990, 1995, and 2000 is included for historical

perspective. Death data are not available for people reported with HIV infection (non-AIDS) prior to 1999, as HIV infection was not a reportable condition before this time. Since 1999, the majority of annual deaths in persons diagnosed with HIV infection occur in persons who are reported with an AIDS diagnosis (ranging from 79% to 89%).

Death data presented in this analysis include all deaths among people reported with HIV infection or AIDS in Massachusetts. This includes deaths from all causes, including cardiovascular disease, liver disease, cancer, accidental injury, or poisoning inclusive of drug overdose. Therefore, the number of deaths reported here will vary from the number of HIV/AIDS deaths reported in *Massachusetts Deaths* by the Massachusetts Department of Public Health, Registry of Vital Records and Statistics, Bureau of Health Information, Statistics, Research and Evaluation.

On an annual basis, the HIV/AIDS Surveillance Program matches all reports of individuals living with HIV/AIDS against that year's vital statistics file of all individuals who died in Massachusetts. Additionally, death certificates with HIV/AIDS among reported underlying conditions are received by the HIV/AIDS Surveillance Program, and providers may report deaths among their patients.

Table 1. Ranking of ten leading underlying causes of death among persons 25–44 years of age: Massachusetts, 2011

Cause	Ranking	N	% of Total Deaths (N=1,870)
Unintentional Injuries	1	524	28.0%
Cancer	2	291	15.6%
Heart Disease	3	203	10.9%
Suicide	4	190	10.2%
Homicide	5	68	3.6%
Ill-defined conditions-signs and symptoms	6	63	3.4%
Chronic liver disease	7	48	2.6%
Stroke	8	29	1.6%
Diabetes	9	28	1.5%
Injuries of undetermined intent	10	28	1.5%

[1] Deaths where investigation has not determined whether injuries were accidental or purposely inflicted.
Data Source: MDPH Bureau of Health Information, Statistics, Research and Evaluation, Massachusetts Provisional Deaths 2011, available online at http://www.mass.gov/eohhs/docs/dph/research-epi/death-report-2011.pdf

Table 2. Deaths among persons reported with HIV infection (non-AIDS) and AIDS by year of death: Massachusetts, 1985–2012[1]

	HIV	AIDS	Total HIV + AIDS
Year of death	**N**	**N**	
1985	--[2]	118	--[2]
1986	--[2]	196	--[2]
1987	--[2]	316	--[2]
1988	--[2]	408	--[2]
1989	--[2]	539	--[2]
1990	--[2]	618	--[2]
1991	--[2]	787	--[2]
1992	--[2]	882	--[2]
1993	--[2]	1,010	--[2]
1994	--[2]	1,158	--[2]
1995	--[2]	1,133	--[2]
1996	--[2]	757	--[2]
1997	--[2]	370	--[2]
1998	--[2]	318	--[2]
1999	48	337	385
2000	41	312	353
2001	60	356	416
2002	57	311	368
2003	68	323	391
2004	44	309	353
2005	54	278	332
2006	39	285	324
2007	44	242	286
2008	57	225	282
2009	51	237	288
2010	51	209	260
2011	36	176	212
2012	43	165	208

[1] Effective, January 1, 2011 the Massachusetts Department of Public Health, HIV/AIDS fact sheets, epidemiologic reports, and other data presentations have been updated to remove all HIV/AIDS cases that were first diagnosed in another state before being reported in Massachusetts.

[2] HIV infection reporting was implemented in 1999; therefore there are minimal data for deaths among people with HIV that did not progress to AIDS during this time period.

Data Source MDPH HIV/AIDS Surveillance Program (percentages may not add up to 100% due to rounding), Data as of 1/1/14

Table 3. Deaths among persons reported with HIV/AIDS by gender and year of death: Massachusetts[1], 2003–2012

	Male		Female		Total
Year of death	**N**	**%**	**N**	**%**	**N**
2003	257	66%	134	34%	**391**
2004	257	73%	96	27%	**353**
2005	233	70%	99	30%	**332**
2006	232	72%	92	28%	**324**
2007	201	70%	85	30%	**286**
2008	205	73%	77	27%	**282**
2009	196	68%	92	32%	**288**
2010	183	70%	77	30%	**260**
2011	153	72%	59	28%	**212**
2012	139	67%	69	33%	**208**

[1] Effective, January 1, 2011 the Massachusetts Department of Public Health, HIV/AIDS fact sheets, epidemiologic reports, and other data presentations have been updated to remove all HIV/AIDS cases that were first diagnosed in another state before being reported in Massachusetts.
Data Source MDPH HIV/AIDS Surveillance Program (percentages may not add up to 100% due to rounding), Data as of 1/1/14

Table 4. Deaths among persons reported with HIV/AIDS by place of birth and year of death: Massachusetts[1], 2003–2012

	US		Puerto Rico/ US Dependency[2]		Non-US		Total
Year of Death	**N**	**%**	**N**	**%**	**N**	**%**	**N**
2003	304	78%	52	13%	35	9%	**391**
2004	265	75%	57	16%	31	9%	**353**
2005	245	74%	61	18%	26	8%	**332**
2006	249	77%	46	14%	29	9%	**324**
2007	229	80%	35	12%	22	8%	**286**
2008	207	73%	40	14%	35	12%	**282**
2009	218	76%	39	14%	31	11%	**288**
2010	199	77%	39	15%	22	8%	**260**
2011	158	75%	32	15%	22	10%	**212**
2012	169	81%	22	11%	17	8%	**208**

[1] Effective, January 1, 2011 the Massachusetts Department of Public Health, Office of HIV/AIDS fact sheets, epidemiologic reports, and other data presentations have been updated to remove all HIV/AIDS cases that were first diagnosed in another state before being diagnosed and reported in Massachusetts.
[2] Ninety-eight percent of all people diagnosed with HIV infection in MA who were born in a US dependency were born in Puerto Rico, 1% were born in the US Virgin Islands, <1% were born in American Samoa, <1% were born in Guam and 1% were born in an unspecified dependency.
Data Source: MDPH HIV/AIDS Surveillance Program (percentages may not add up to 100% due to rounding), data as of 1/1/14

Table 5. Deaths among persons reported with HIV/AIDS by race/ethnicity and year of death: Massachusetts[1], 2003–2012

	White (NH)		Black (NH)		Hispanic/Latino		API		Total[2]
	N	%	N	%	N	%	N	%	N
2003	189	48%	110	28%	89	23%	1	<1%	**391**
2004	175	50%	87	25%	87	25%	4	1%	**353**
2005	153	46%	88	27%	88	27%	3	1%	**332**
2006	172	53%	77	24%	73	23%	2	1%	**324**
2007	146	51%	78	27%	61	21%	1	<1%	**286**
2008	138	49%	76	27%	62	22%	5	2%	**282**
2009	135	47%	74	26%	73	25%	6	2%	**288**
2010	121	47%	64	25%	68	26%	3	1%	**260**
2011	108	51%	57	27%	46	22%	0	0%	**212**
2012	103	50%	50	24%	50	24%	3	1%	**208**

[1] Effective, January 1, 2011 the Massachusetts Department of Public Health, HIV/AIDS fact sheets, epidemiologic reports, and other data presentations have been updated to remove all HIV/AIDS cases that were first diagnosed in another state before being reported in Massachusetts.
[2] Totals include American Indian/Alaskan Native individuals and those of other or undetermined race/ethnicity
(NH) = Non-Hispanic, API = Asian/Pacific Islander
Data Source: MDPH HIV/AIDS Surveillance Program (percentages may not add up to 100% due to rounding), data as of 1/1/14

Table 6. Deaths among men reported with HIV/AIDS by race/ethnicity and year of death: Massachusetts[1], 2003–2012

	White (NH)		Black (NH)		Hispanic/Latino		API		Total[2]
	N	%	N	%	N	%	N	%	N
2003	125	49%	67	26%	64	25%	1	<1%	**257**
2004	138	54%	56	22%	59	23%	4	2%	**257**
2005	112	48%	56	24%	62	27%	3	1%	**233**
2006	135	58%	46	20%	49	21%	2	1%	**232**
2007	116	58%	38	19%	46	23%	1	<1%	**201**
2008	108	53%	53	26%	38	19%	5	2%	**205**
2009	89	45%	53	27%	48	24%	6	3%	**196**
2010	91	50%	39	21%	49	27%	2	1%	**183**
2011	81	53%	39	25%	32	21%	0	0%	**153**
2012	75	54%	30	22%	30	22%	3	2%	**139**

[1] Effective, January 1, 2011 the Massachusetts Department of Public Health, HIV/AIDS fact sheets, epidemiologic reports, and other data presentations have been updated to remove all HIV/AIDS cases that were first diagnosed in another state before being reported in Massachusetts.
[2] Totals include American Indian/Alaskan Native individuals and those of other or undetermined race/ethnicity
(NH) = Non-Hispanic, API = Asian/Pacific Islander
Data Source: MDPH HIV/AIDS Surveillance Program (percentages may not add up to 100% due to rounding), data as of 1/1/14

Table 7. Deaths among women reported with HIV/AIDS by race/ethnicity and year of death: Massachusetts[1], 2003–2012

	White (NH)		Black (NH)		Hispanic/Latina		API		Total[2]
	N	%	N	%	N	%	N	%	N
2003	64	48%	43	32%	25	19%	0	0%	**134**
2004	37	39%	31	32%	28	29%	0	0%	**96**
2005	41	41%	32	32%	26	26%	0	0%	**99**
2006	37	40%	31	34%	24	26%	0	0%	**92**
2007	30	35%	40	47%	15	18%	0	0%	**85**
2008	30	39%	23	30%	24	31%	0	0%	**77**
2009	46	50%	21	23%	25	27%	0	0%	**92**
2010	30	39%	25	32%	19	25%	1	1%	**77**
2011	27	46%	18	31%	14	24%	0	0%	**59**
2012	28	41%	20	29%	20	29%	0	0%	**69**

[1] Effective, January 1, 2011 the Massachusetts Department of Public Health, HIV/AIDS fact sheets, epidemiologic reports, and other data presentations have been updated to remove all HIV/AIDS cases that were first diagnosed in another state before being reported in Massachusetts.
[2] Totals include American Indian/Alaskan Native individuals and those of other or undetermined race/ethnicity
(NH) = Non-Hispanic, API = Asian/Pacific Islander
Data Source: MDPH HIV/AIDS Surveillance Program (percentages may not add up to 100% due to rounding), data as of 1/1/14

Table 8. Deaths among persons reported with HIV/AIDS by reported risk and year of death: Massachusetts[1], 2003–2012

	MSM		IDU		MSM/ IDU		HTSX		Pres. HTSX[2]		Undeter-mined[3]		Total[4]
	N	%	N	%	N	%	N	%	N	%	N	%	N
2003	68	17%	196	50%	17	4%	47	12%	9	2%	46	12%	**391**
2004	68	19%	177	50%	17	5%	32	9%	12	3%	40	11%	**353**
2005	56	17%	171	52%	15	5%	39	12%	18	5%	31	9%	**332**
2006	63	19%	162	50%	19	6%	32	10%	16	5%	30	9%	**324**
2007	64	22%	125	44%	26	9%	28	10%	13	5%	25	9%	**286**
2008	57	20%	127	45%	15	5%	26	9%	12	4%	41	15%	**282**
2009	45	16%	144	50%	10	3%	36	13%	13	5%	39	14%	**288**
2010	58	22%	119	46%	14	5%	18	7%	10	4%	37	14%	**260**
2011	42	20%	89	42%	16	8%	22	10%	7	3%	33	16%	**212**
2012	46	22%	102	49%	8	4%	20	10%	9	4%	19	9%	**208**

[1] Effective, January 1, 2011 the Massachusetts Department of Public Health, HIV/AIDS fact sheets, epidemiologic reports, and other data presentations have been updated to remove all HIV/AIDS cases that were first diagnosed in another state before being reported in Massachusetts.
[2] Includes female sex with male of unknown HIV status or risk. This category is limited to women.
[3] Includes male sex with female of unknown HIV status or risk, those still being followed up for risk information, those who have died with no determined risk, and those lost to follow-up.
[4] Totals include pediatric and blood/blood products reported risks
MSM = Male-to-Male Sex; IDU = Injection Drug Use; HTSX = Heterosexual Sex; Pres. HTSX = Presumed Heterosexual Sex
Data Source: MDPH HIV/AIDS Surveillance Program (percentages may not add up to 100% due to rounding), Data as of 1/1/14

Note: The category of "presumed heterosexual" is used in Massachusetts to re-assign women who are reported with a reported risk of heterosexual sex, but only with a

partner of unknown HIV status or behavioral risk. Massachusetts uses the category of presumed heterosexual to distinguish these female cases from other undetermined cases about which we know less. Prior to January 1, 2011, the presumed heterosexual category was also used to report HIV data in males. The rationale for the application of the presumed heterosexual reported risk category to women only has been addressed in the MDPH OHA report "Intersecting Risks: HIV Infection among Heterosexual Women and Men in Massachusetts." (2010) http://www.mass.gov/Eeohhs2/docs/dph/aids/intersecting_risks.pdf. Nationally, the Centers for Disease Control and Prevention categorize "presumed heterosexual" cases as "no identified risk" (NIR). As such, comparisons of the presumed heterosexual category cannot be made to national data. Caution should be used in interpreting data for presumed heterosexual, as it is still not clear what the reported risk was for women in this category. Although a person may not report other risk behaviors, such as injection drug use to a health care provider, it does not exclude the possibility that an individual has experienced these other risks. There are many barriers to disclosing HIV risk behaviors in the health care setting such as a limited patient-provider relationship or stigma.

Table 9. Deaths among *men* reported with HIV/AIDS by reported risk and year of death: Massachusetts[1], 2003–2012

	MSM		IDU		MSM/IDU		HTSX		Undetermined[2]		Total[3]
	N	%	N	%	N	%	N	%	N	%	N
2003	68	26%	119	46%	17	7%	19	7%	30	12%	**257**
2004	68	26%	115	45%	17	7%	17	7%	34	13%	**257**
2005	56	24%	118	51%	15	6%	14	6%	28	12%	**233**
2006	63	27%	108	47%	19	8%	11	5%	29	13%	**232**
2007	64	32%	78	39%	26	13%	9	4%	22	11%	**201**
2008	57	28%	83	40%	15	7%	13	6%	33	16%	**205**
2009	45	23%	94	48%	10	5%	13	7%	33	17%	**196**
2010	58	32%	73	40%	14	8%	5	3%	30	16%	**183**
2011	42	27%	55	36%	16	10%	10	7%	29	19%	**153**
2012	46	33%	62	45%	8	6%	4	3%	18	13%	**139**

[1] Effective, January 1, 2011 the Massachusetts Department of Public Health, HIV/AIDS fact sheets, epidemiologic reports, and other data presentations have been updated to remove all HIV/AIDS cases that were first diagnosed in another state before being reported in Massachusetts.
[2] Includes male sex with female of unknown HIV status or risk, those still being followed up for risk information, those who have died with no determined risk, and those lost to follow-up.
[3] Totals include pediatric and blood/blood products reported risks.
MSM = Male-to-Male Sex; IDU = Injection Drug Use; MSM/IDU = Male-to-Male Sex and Injection Drug Use; HTSX = Heterosexual Sex
Data Source: MDPH HIV/AIDS Surveillance Program (percentages may not add up to 100% due to rounding), data as of 1/1/14

Table 10. Deaths among *women* reported with HIV/AIDS by reported risk and year of death: Massachusetts[1], 2003–2012

	IDU		HTSX		Pres. HTSX[2]		Undetermined[3]		Total[4]
	N	%	N	%	N	%	N	%	N
2003	77	57%	28	21%	9	7%	16	12%	**134**
2004	62	65%	15	16%	12	13%	6	6%	**96**
2005	53	54%	25	25%	18	18%	3	3%	**99**
2006	54	59%	21	23%	16	17%	1	1%	**92**
2007	47	55%	19	22%	13	15%	3	4%	**85**
2008	44	57%	13	17%	12	16%	8	10%	**77**
2009	50	54%	23	25%	13	14%	6	7%	**92**
2010	46	60%	13	17%	10	13%	7	9%	**77**
2011	34	58%	12	20%	7	12%	4	7%	**59**
2012	40	58%	16	23%	9	13%	1	1%	**69**

[1] Effective, January 1, 2011 the Massachusetts Department of Public Health, HIV/AIDS fact sheets, epidemiologic reports, and other data presentations have been updated to remove all HIV/AIDS cases that were first diagnosed in another state before being reported in Massachusetts.
[2] Includes female sex with male of unknown HIV status or risk. This category is limited to women.
[3] Includes those still being followed up for risk information, those who have died with no determined risk and those lost to follow-up.
[4] Totals include pediatric and blood/blood products reported risks
IDU = Injection Drug Use; HTSX = Heterosexual Sex; Pres. HTSX = Presumed Heterosexual Sex
Data Source: MDPH HIV/AIDS Surveillance Program (percentages may not add up to 100% due to rounding), data as of 1/1/14

Technical Notes: Explanation of Crude and Age-Adjusted Rates of Death

A rate of a disease per 100,000 population is a more precise way to compare groups that have substantially different population sizes rather than relying on the raw number of deaths. To adjust for fluctuations in the annual rate of death among people reported with HIV/AIDS, an average annual rate of death for the period 2010 to 2012 is used. The average number of deaths is calculated over the three-year period by adding the total number of deaths among people reported with HIV/AIDS in each of the three years and dividing by three. The crude average annual rate of death is then calculated by dividing the average number of people reported with HIV/AIDS who died during the three years by the entire population (everyone or the sub-population involved) and multiplying by 100,000. (See example 1 below). The Massachusetts (Department of Public Health) Modified Age, Race/Ethnicity, & Sex Estimates 2010 file is the source of population sizes for these calculations.

Example 1: Calculation of Crude Average Annual Rate of Death among People Reported with HIV/AIDS for White Individuals, Massachusetts, 2010–2012 (2.2 per 100,000)

Crude average annual rate of death among reported HIV/AIDS cases for white individuals, 2010–2012	= (((number of white individuals reported with HIV/AIDS who died in 2010 + number of white individuals reported with HIV/AIDS who died in 2011 + number of white individuals reported with HIV/AIDS who died in 2012) ÷ 3) ÷ population size of white individuals) × 100,000 = (((121 + 108 + 103) ÷ 3) ÷ 5,132,633) × 100,000 = ((332 ÷ 3) ÷ 5,132,633) × 100,000 = (110.6667÷ 5,132,633) × 100,000 = 0.000021561× 100,000 = **2.2**

Sometimes, in addition to the population size being different, the age composition of the populations is different. In Massachusetts, black and Hispanic/Latino populations are younger than white. The median age of the black non-Hispanic population (29.7 years) and the Hispanic/Latino population (24.5 years) is younger than that of white population (38.8 years). Therefore, it is necessary to “age-adjust” the rate of death among people reported with HIV/AIDS to get a true comparison of the impact of the disease across racial/ethnic groups without an effect from the differences in age composition. Age-adjustment of rates minimizes the distortion created by differences in age composition.

Age-adjusted rates are calculated by weighting the age-specific rates for a given population by the age distribution of a standard population. The age-specific rates are calculated for eleven age groups ranging from less than one year old to 85 years or above and are weighted by the 2000 US standard population. The weighted age-

specific rates are then added to produce the adjusted rate for all ages combined. (See example 2 below).

Example 2: Calculation of Age-adjusted Rate of Death among People Reported with HIV/AIDS for White Individuals, Massachusetts, 2010–2012, (2.3 per 100,000)

A	*B*	*C*	*D*	*E*
Age group (in years)	Average number of deaths among reported HIV/AIDS cases 2010–2012	Population (2010)	2000 US standard population weight	Age-adjusted rate ((B÷C×D)×100,000))
<1	0	48,010	0.013818	0.00
1-4	0	200,452	0.055317	0.00
5-14	0	571,967	0.145565	0.00
15-24	10.33333	677,899	0.138646	0.21
25-34	29.33333	603,245	0.135573	0.66
35-44	37.66667	676,064	0.162613	0.91
45-54	24.33333	841,315	0.134834	0.39
55-64	8.333333	697,852	0.087247	0.10
65-74	0.333333	403,518	0.066037	0.01
75-84	0.333333	275,380	0.044842	0.01
85+ years	0	136,931	0.015508	0.00
Total	110.6667	5,132,633	1	**2.3**

To see the effect of age-distribution on rates of death see Table 11 below for a comparison of crude and age-adjusted rates by race/ethnicity.

Table 11. Crude and age-adjusted rates of death among people reported with HIV/AIDS per 100,000 population[1] by race/ethnicity and gender: average annual rate 2010–2012, Massachusetts[2]

State Total:	Crude Rate per 100,000	Age-Adjusted Rate per 100,000
White (non-Hispanic)	2.2	2.3
Black (non-Hispanic)	13.7	13.9
Hispanic/Latino	8.7	9.0
Mass. Total Rate	**3.5**	**3.6**
Men:	**Crude Rate per 100,000**	**Age-Adjusted Rate per 100,000**
White (non-Hispanic) Men	3.3	3.5
Black (non-Hispanic) Men	17.9	18.5
Hispanic/Latino Men	12.0	13.3
Mass. Total Rate Among Men	**5.0**	**5.1**
Women:	**Crude Rate per 100,000**	**Age-Adjusted Rate per 100,000**
White (non-Hispanic) Women	1.1	1.2
Black (non-Hispanic) Women	9.8	9.8
Hispanic/Latina Women	5.5	5.2
Mass. Total Rate Among Women	**2.0**	**2.1**

[1] The denominators for rate calculations are from the Massachusetts (Department of Public Health) Modified Age, Race/Ethnicity, & Sex Estimates 2010; all rates are age-adjusted using the 2000 US standard population.
[2] Effective, January 1, 2011 the Massachusetts Department of Public Health, Office of HIV/AIDS fact sheets, epidemiologic reports, and other data presentations have been updated to remove all HIV/AIDS cases that were first diagnosed in another state before being diagnosed and reported in Massachusetts.
Data Source: MDPH HIV/AIDS Surveillance Program; data as of 1/1/14

Technical Notes: Trends in survival after an AIDS diagnosis

The following analyses describe changes over time in the survival of people who are diagnosed with AIDS in Massachusetts.

Tables 12–16 describe how many people died within 1 year of an AIDS diagnosis, between 1 and 2 years, between 2 and 3 years, etc., and up to 10 or more years for all people diagnosed with AIDS from 1987 to 2008. For example, the first column of Table 13 indicates that of 628 people diagnosed with AIDS in 1987, 250, or 40%, died within 1 year of diagnosis; 157, or 25%, died between 1 and 2 years of diagnosis; and 90, or 14%, died between 2 and 3 years of diagnosis.

It should be noted that if a person was diagnosed with AIDS in 2008, only one complete year of survival can be assessed, since this report includes data only up to January 1, 2010. Likewise, a diagnosis of AIDS in 2007 would not allow observation for more than two years, etc. These observations are relevant when interpreting the following tables and especially when comparing the distribution of survival times across years. With these caveats in mind, there has been a fairly consistent decline in the percentage of people who die within two years of an AIDS diagnosis. This most likely reflects higher rates of early diagnosis and improved care and treatment of people living with AIDS in the Commonwealth.

In comparing survival for people diagnosed in 1988 with people diagnosed in more recent years, it is evident that the proportion of people who are still alive is greater for each successive time period. More people are surviving for longer time periods after being diagnosed with AIDS. Advances in the prevention of opportunistic infections and the treatment of HIV infection over the years account for this significant increase in survival.

Table 12. Time from AIDS diagnosis to death by year of AIDS diagnosis: Massachusetts[1], 1987–1991

	1987		1988		1989		1990		1991	
Survival time[2]	N	%	N	%	N	%	N	%	N	%
<1 yr.	250	40%	257	31%	265	28%	273	26%	340	26%
1 - <2 yr.	157	25%	199	24%	216	23%	207	20%	297	23%
2 - <3 yr.	90	14%	140	17%	166	17%	192	18%	204	16%
3 - <4 yr.	44	7%	69	8%	85	9%	113	11%	114	9%
4 - <5 yr.	16	3%	35	4%	63	7%	63	6%	70	5%
5 - <6 yr.	11	2%	25	3%	44	5%	39	4%	35	3%
6 - <7 yr.	8	1%	12	1%	16	2%	14	1%	12	1%
7 - <8 yr.	5	1%	13	2%	7	1%	10	1%	13	1%
8 - <9 yr.	9	1%	3	<1%	4	<1%	10	1%	10	1%
9 - <10 yr.	0	0%	2	<1%	5	1%	7	1%	6	<1%
10+ yr.	10	2%	18	2%	28	3%	38	4%	45	3%
Still Alive	28	4%	63	8%	61	6%	86	8%	157	12%
Total	**628**	**100%**	**836**	**100%**	**960**	**100%**	**1,052**	**100%**	**1,303**	**100%**

[1] Effective, January 1, 2011 the Massachusetts Department of Public Health, Office of HIV/AIDS fact sheets, epidemiologic reports, and other data presentations have been updated to remove all HIV/AIDS cases that were first diagnosed in another state before being diagnosed and reported in Massachusetts.
[2] Years between AIDS diagnosis and death
Data Source: MDPH Surveillance Program; data as of 1/1/14

Table 13. Time from AIDS diagnosis to death by year of AIDS diagnosis: Massachusetts[1], 1992–1996

	1992		1993		1994		1995		1996	
Survival time[2]	N	%	N	%	N	%	N	%	N	%
<1 yr.	335	20%	326	19%	266	19%	195	15%	97	9%
1 - <2 yr.	360	21%	346	20%	246	17%	94	7%	45	4%
2 - <3 yr.	297	18%	253	15%	115	8%	56	4%	53	5%
3 - <4 yr.	170	10%	110	6%	51	4%	50	4%	40	4%
4 - <5 yr.	59	4%	47	3%	35	2%	40	3%	41	4%
5 - <6 yr.	32	2%	34	2%	41	3%	31	2%	37	3%
6 - <7 yr.	36	2%	32	2%	26	2%	36	3%	34	3%
7 - <8 yr.	15	1%	32	2%	43	3%	44	3%	23	2%
8 - <9 yr.	32	2%	21	1%	25	2%	28	2%	25	2%
9 - <10 yr.	21	1%	22	1%	17	1%	27	2%	17	2%
10+ yr.	97	6%	114	7%	124	9%	117	9%	108	10%
Still Alive	230	14%	368	22%	428	30%	616	46%	610	54%
Total	**1,684**	**100%**	**1,705**	**100%**	**1,417**	**100%**	**1,334**	**100%**	**1,130**	**100%**

[1] Effective, January 1, 2011 the Massachusetts Department of Public Health, Office of HIV/AIDS fact sheets, epidemiologic reports, and other data presentations have been updated to remove all HIV/AIDS cases that were first diagnosed in another state before being diagnosed and reported in Massachusetts.
[2] Years between AIDS diagnosis and death
Data Source: MDPH Surveillance Program; data as of 1/1/14

Table 14. Time from AIDS diagnosis to death by year of AIDS diagnosis: Massachusetts[1], 1997–2001

	1997		1998		1999		2000		2001	
Survival time[2]	N	%	N	%	N	%	N	%	N	%
<1 yr.	68	8%	53	6%	59	7%	54	7%	62	9%
1 - <2 yr.	38	4%	38	4%	31	4%	19	2%	23	3%
2 - <3 yr.	33	4%	19	2%	34	4%	25	3%	22	3%
3 - <4 yr.	28	3%	23	2%	22	2%	19	2%	14	2%
4 - <5 yr.	39	4%	27	3%	27	3%	22	3%	16	2%
5 - <6 yr.	24	3%	26	3%	18	2%	25	3%	20	3%
6 - <7 yr.	23	3%	26	3%	17	2%	13	2%	10	1%
7 - <8 yr.	22	2%	26	3%	17	2%	11	1%	12	2%
8 - <9 yr.	21	2%	18	2%	19	2%	12	2%	7	1%
9 - <10 yr.	20	2%	18	2%	12	1%	13	2%	12	2%
10+ yr.	69	8%	62	7%	47	5%	28	4%	6	1%
Still Alive	518	57%	586	64%	580	66%	533	69%	502	71%
Total	**903**	**100%**	**922**	**100%**	**883**	**100%**	**774**	**100%**	**706**	**100%**

[1] Effective, January 1, 2011 the Massachusetts Department of Public Health, Office of HIV/AIDS fact sheets, epidemiologic reports, and other data presentations have been updated to remove all HIV/AIDS cases that were first diagnosed in another state before being diagnosed and reported in Massachusetts.
[2] Years between AIDS diagnosis and death
[3] Individuals diagnosed in this year have not yet had the opportunity to survive this many years before death.
Data Source: MDPH Surveillance Program; data as of 1/1/14

Table 15. Time from AIDS diagnosis to death by year of AIDS diagnosis: Massachusetts[1], 2002–2006

	2002		2003		2004		2005		2006	
Survival time[2]	N	%	N	%	N	%	N	%	N	%
<1 yr.	44	6%	41	7%	49	7%	39	6%	35	5%
1 - <2 yr.	19	3%	18	3%	21	3%	10	1%	10	2%
2 - <3 yr.	15	2%	9	1%	15	2%	10	1%	9	1%
3 - <4 yr.	19	3%	13	2%	16	2%	8	1%	5	1%
4 - <5 yr.	13	2%	14	2%	11	2%	14	2%	6	1%
5 - <6 yr.	12	2%	10	2%	8	1%	14	2%	7	1%
6 - <7 yr.	16	2%	13	2%	10	1%	7	1%	0	0%
7 - <8 yr.	8	1%	6	1%	4	1%	3	<1%	--[3]	--[3]
8 - <9 yr.	6	1%	6	1%	5	1%	--[3]	--[3]	--[3]	--[3]
9 - <10 yr.	7	1%	8	1%	--[3]	--[3]	--[3]	--[3]	--[3]	--[3]
10+ yr.	4	1%	--[3]	--[3]	--[3]	--[3]	--[3]	--[3]	--[3]	--[3]
Still Alive	529	76%	480	78%	560	80%	589	85%	591	89%
Total	**692**	**100%**	**618**	**100%**	**699**	**100%**	**694**	**100%**	**663**	**100%**

[1] Effective, January 1, 2011 the Massachusetts Department of Public Health, Office of HIV/AIDS fact sheets, epidemiologic reports, and other data presentations have been updated to remove all HIV/AIDS cases that were first diagnosed in another state before being diagnosed and reported in Massachusetts.
[2] Years between AIDS diagnosis and death
[3] Individuals diagnosed in this year have not yet had the opportunity to survive this many years before death.
Data Source: MDPH Surveillance Program; data as of 1/1/14

Table 16. Time from AIDS diagnosis to death by year of AIDS diagnosis: Massachusetts[1], 2007–2012

	2007		2008		2009		2010		2011		2012	
Survival time[2]	N	%	N	%	N	%	N	%	N	%	N	%
<1 yr.	26	5%	33	7%	26	6%	28	7%	19	5%	3	1%
1 - <2 yr.	19	3%	8	2%	3	1%	3	1%	1	<1%	--[3]	--[3]
2 - <3 yr.	8	1%	6	1%	7	2%	4	1%	--[3]	--[3]	--[3]	--[3]
3 - <4 yr.	5	1%	4	1%	6	1%	--[3]	--[3]	--[3]	--[3]	--[3]	--[3]
4 - <5 yr.	6	1%	2	<1%	--[3]	--[3]	--[3]	--[3]	--[3]	--[3]	--[3]	--[3]
5 - <6 yr.	1	<1%	--[3]	--[3]	--[3]	--[3]	--[3]	--[3]	--[3]	--[3]	--[3]	--[3]
6 - <7 yr.	--[3]	--[3]	--[3]	--[3]	--[3]	--[3]	--[3]	--[3]	--[3]	--[3]	--[3]	--[3]
7 - <8 yr.	--[3]	--[3]	--[3]	--[3]	--[3]	--[3]	--[3]	--[3]	--[3]	--[3]	--[3]	--[3]
8 - <9 yr.	--[3]	--[3]	--[3]	--[3]	--[3]	--[3]	--[3]	--[3]	--[3]	--[3]	--[3]	--[3]
9 - <10 yr.	--[3]	--[3]	--[3]	--[3]	--[3]	--[3]	--[3]	--[3]	--[3]	--[3]	--[3]	--[3]
10+ yr.	--[3]	--[3]	--[3]	--[3]	--[3]	--[3]	--[3]	--[3]	--[3]	--[3]	--[3]	--[3]
Still Alive	501	89%	416	89%	422	91%	388	92%	400	95%	361	99%
Total	**566**	**100%**	**469**	**100%**	**464**	**100%**	**423**	**100%**	**420**	**100%**	**364**	**100%**

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[2] Years between AIDS diagnosis and death
[3] Individuals diagnosed in this year have not yet had the opportunity to survive this many years before death.
Data Source: MDPH Surveillance Program; data as of 1/1/14